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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,366	07/24/2003	Kent K. Leung	CISCP091C1	2451

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BEYER WEAVER LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER
SHAH, CHIRAG G

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
08/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/627,366	LEUNG, KENT K.	
	Examiner	Art Unit	
	Chirag G. Shah	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/25/07*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 11-57* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 11-57* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Receipt is acknowledged of a request for continued examination under 37 CFR 1.114.

2. Applicant's arguments filed 5/25/07 have been fully considered but they are not persuasive. Applicant argues that neither of the cited references discloses or suggests specifying a physical interface rather than the conventional tunnel interface in a mobility binding table, visitor table or a routing table. Applicant further argues that the La Porta in view of Ahmed fails to disclose the amended limitation of a physical interface on the router, thereby enables packets addressed to a home address of the mobile node to be forwarded to the care-of-address via the physical interface on the router. Examiner respectfully disagrees and redirects Applicant to the Ahmed references. Ahmed discloses in col. 11, lines 42-67 that the physical interface on the router (network node 104) is defined with a node ID, interface ID and a port ID. Fig. 4 and col. 11, lines 42-67 suggests that the network node 104 includes HLR, VLR and Home directory table, thus the physical interface of the network node 104 enables packets addressed to the home address of the mobile node 102 to be forwarded to the VLR via the physical interface identified for the network node 104. Therefore, the claims respectfully remain unpatentable over the cited art.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined

application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 26 and 46 rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 29 respectively of U.S. Patent No. 6,621,810. Although the conflicting claims are not identical, they are not patentably distinct from each other because Claims 26 and 46 merely broaden the scope of claims 1 and 26 of U.S. Patent No. 6,195,705 by eliminating the term, "if it is ascertained from the registration request packet that the router does not include the Home Agent, forwarding the registration request packet to the Home Agent, wherein the Home Agent is external to the router." It is held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. In re Karlson, 136 USPQ 184 (CCPA). Also note Ex Parte Raine, 168 USPQ 375 (bd. App. 1969); omission of a reference element whose function is not needed would be obvious to one skilled in the art. Therefore, claims 26 and 46 of the instant application is rejected so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by the patent.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-9 and 11-57 rejected under 35 U.S.C. 103(a) as being unpatentable over La Porta (U.S. Patent No. 6,434,134) in view of Ahmed et al. (U.S. Patent No. 6,160,804).

Regarding claims 1, 9, 19, 22, and 25 La Porta teaches in figure 2 and respective portions of the specification of a router supporting mobile IP where the root router utilizes a processor and memory together. La Porta also teaches in columns 4-6 of route optimization extension that provides a means for the correspondent node to cache a binding associated with the mobile device and then send packets directly to the care-of address indicated in that binding, thereby bypassing the mobile device's home agent. La Porta fails to explicitly teach of disclosing a binding table, which includes an entry associated with at least one mobile node that has registered with a Home Agent of the router and the entry identifies a care-of address associated with the at least one mobile node and a visitor table, which includes the list of addresses of all mobile nodes being services by a Foreign Agent of the router and mobile nodes including the at least one mobile node that has registered with the Home Agent of the router, within a router.

Ahmed discloses in figs. 1 and 4 and col. 13, lines 17-65, which includes a table 1 stored in the HLR (Home Location Registers) containing the location of a mobile that is currently attached to and gets when the point of attachment changes the mobile's HLR gets updated, this

table serves at the binding table having the home location register. Ahmed further discloses in col. 14, lines 48-56 that each node (router) also maintains a VLR table that records information on mobiles that are within its coverage area and have registered with it. Thus the HLR, the VLR, and the Home Directory table may be stored and updated in memory 12 of the network node. Ahmed additionally discloses in col. 11, lines 42-67 that the physical interface on the router (network node 104) is defined with a node ID, interface ID and a port ID. Fig. 4 and col. 11, lines 42-67 suggests that the network node 104 includes HLR, VLR and Home directory table, thus the physical interface of the network node 104 enables packets addressed to the home address of the mobile node 102 to be forwarded to the VLR via the physical interface identified for the network node 104. Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention to modify the teaching of La Porta to include the features of a VLR and HLR tables within a network node as taught by Ahmed. One is motivated as such in order to ensure a mobility management technique that yields an efficient, scaleable, and flexible communications system capable of handling various multimedia applications in a highly dynamic networking environment.

Regarding claims 26, 30-32, 44-46, 50, and 54, La Porta teaches in figure 2 and respective portions of the specification of a router supporting mobile IP where the root router utilizes a processor and memory together. La Porta also teaches in columns 4-6 of route optimization extension that provides a means for the correspondent node to cache a binding associated with the mobile device and then send packets directly to the care-of address indicated in that binding, thereby bypassing the mobile device's home agent. La Porta fails to explicitly

disclose of the method, an apparatus and a computer readable-medium registering a mobile node visiting a Foreign Agent with a Home Agent. Ahmed discloses

receiving a registration request packet from the mobile node [network node 104 of figure 4, periodically receives registration entries in HLR, see col. 13, lines 15-30 and fig. 4];

determining from the registration request packet whether the router includes the Foreign Agent the mobile node is visiting [see col. 15, lines 27 to col. 16, lines 17, where the direct network node checks the VLR to see if there is a match to the host name the mobile node is visiting]

determining from the registration request packet whether the router includes the Home Agent with which the mobile node is registering [see col. 15, lines 27 to col. 16, lines 17, where the initiating mobile sends an HLR SNLA lookup message to the direct network node to query the HLR SNLA lookup message to the direct network node to query the HLR location of the correspondent mobile]; and

if it is determined from the registration request packet that the router includes the Foreign Agent the mobile node is visiting and the Home Agent with which the mobile node is registering, registering the mobile node with the Home Agent of the router [see figs 5A and 5B and col. 15, lines 27 to col. 16, lines 17, the initiating mobile sends HLR look up message to direct network node; network node checks to determine if a match exists; if no match exists, the direct network node directs HLR of correspondent mobile in the home directory table and the HLR initiates search procedure to locate and register the correspondent mobile].

Ahmed additionally discloses in col. 11, lines 42-67 that the physical interface on the router (network node 104) is defined with a node ID, interface ID and a port ID. Fig. 4 and col.

11, lines 42-67 suggests that the network node 104 includes HLR, VLR and Home directory table, thus the physical interface of the network node 104 enables packets addressed to the home address of the mobile node 102 to be forwarded to the VLR via the physical interface identified for the network node 104.

Regarding claims 2, 11 and 24, La Porta teaches in columns 6 and 7 that when a mobile device in transit is handed off from one base station within the assigned home domain to a base station in a foreign domain, packets are tunneled from the home agent to a care-of address assigned to the mobile device within the foreign domain as claim. Routers are then updated within the foreign domain to reflect the changes in registration as claim.

Regarding claims 3, 6, 12, 13, 16, 38 and 41-43, La Porta teaches wherein the Home Agent is associated with a first interface of the router and the Foreign Agent is associated with a second interface of the router; wherein the first interface is the second interface; wherein the first interface is different from the second interface; wherein at least one of the processor or the memory provide a routing table including an interface field that identifies a physical interface on a router [La Porta discloses in col. 15, lines 48-66 and col. 16, lines 42 to col. 17, lines 34 of having a processor or memory to provide the routing table an interface field that identifies the physical interface of the router. La Porta teaches in figures 12-18, column 17-33 and respective portions of the specification that three path handoff schemes are used and the routing table updates accordingly. In other words, in routers processing a new-to-old handoff path setup message, routers which receive message update their routing table entries corresponding to the originating mobile device's IP address to point to the interface of the router over which the

handoff path setup message arrived. Therefore, the interface field in the routing table identifies a physical interface on the router as claim. La Porta teaches in figure 22 and respective portion of that specification that the tunneling optimization utilizes a foreign agent co-located with the mobile device, therefore, a mobile device's care-of address is used as the mobile device's foreign agent address. Thus, the home agent may interchange the IP header destination address from the mobile device address to the co-located care-of address (foreign agent address). When the packet reaches the mobile device, the co-located foreign agent substitutes the mobile device's IP address for the foreign agent address, thus restoring the packet header with the originally included fields].

Regarding claims 4, 7, 8, 14, 17, 18, 20, 23, 27, 28, 34, 36, 39, 40, 47, 48, 51, 52, 55, and 56, Ahmed suggests wherein registering the mobile node is performed without creating a tunnel interface to reach the mobile node and Home Agent [Ahmed disclose in col. 13, lines 5 to col. 14, lines 55, of Home and Visitor location registration, each mobile station is assigned a HLR, which includes mobile's host name, unique ID, SNLA, time of entry and expiration time; furthermore, each network node also maintains a VLR that records information on mobiles that are within its coverage area and have registered with it, thus clearly suggesting that registration is performed without a tunnel interface] as claim.

Regarding claims 5, 15, and 21, Ahmed discloses in fig. 4 and col. 13, lines 17-50 wherein the next hop field in the routing table specifies a home address associated with one of the mobile nodes as claims.

Regarding claims 29, 49, and 53, Ahmed discloses further comprising: forwarding the registration request packet to the Home Agent if it is ascertained from the registration request packet that the router does not include the Home Agent, wherein the Home Agent is external to the router [see figs 5A and 5B and col. 15, lines 27 to col. 16, lines 17, the initiating mobile sends HLR look up message to direct network node; network node checks to determine if a match exists; if no match exists, the direct network node directs HLR of correspondent mobile in the home directory table and the HLR initiates search procedure to locate the correspondent mobile].

Regarding claims 33, 35 and 37, Ahmed discloses registering the mobile nodes includes updating the binding table of the Home Agent with a care-of-address and visitor tables of the Foreign Agent to include address of the mobile node and an associated physical interface on the router without creating or specifying a tunnel interface to reach the Home Agent [col. 13, lines 25 to col. 14, lines 56, where it clearly discloses that when the mobile's point of attachment changes, then the mobile's HLR table get updated and each network node also maintains a VLR table that records information on mobiles that are within its coverage area and have registered withit; each table includes an associated physical interface of the router by providing the mobile SNLA interface address].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag G. Shah whose telephone number is 571-272-3144. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patel Jay can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

cgs
August 6, 2007

Chirag G. Shah
Primary Examiner, 2616

CHIRAG G. SHAH
PRIMARY PATENT EXAMINER